

historically been considered the most appropriate location to use bottom disturbing gear. Existing fishery rules that restrict bottom disturbing gears in soft bottom habitat include prohibition of trawls, dredges, and long haul seines in Primary Nursery Areas (PNA) [15A NCAC 3N .0104], and prohibition of trawls or mechanical shellfish gear in crab spawning sanctuaries [15A NCAC 3L .0205] in the five northern-most inlets of North Carolina during the blue crab spawning season (March-August).

Fishing gears documented to have the greatest potential to damage or degrade soft bottom are toothed dredges, followed by trawls (DeAlteris et al. 1999; Collie et al. 2000). Bottom trawling is used more extensively than dredging on soft bottom habitat in both estuarine and coastal ocean waters. Shrimp trawling accounts for the majority of bottom trawling effort in North Carolina. Trawling impacts fish habitat by directly removing or damaging epifauna, removing burrow or pit-forming invertebrates, reducing diversity and abundance of benthic community, smoothing sediment features, and increasing exposure to predators (Auster and Langton 1999; Collie et al. 1997). Sediment resuspension can increase turbidity, reducing light dependent benthic productivity, which in turn affects the benthic food web. While several studies have shown negative effects of trawling, other studies have found no negative impacts (Van Dolah et al. 1991; Currie and Parry 1996; Cahoon et al. 2002). Further research is needed to identify the location and duration of trawling in NC waters, and assess the cumulative long-term effect on the fish community.

Wetlands

Bay scallops have not been documented to settle on wetland stems in North Carolina. However, this habitat provides many ecosystem services that benefit bay scallops. Because bay scallops are sensitive to fluctuations in salinity and excessive turbidity, wetlands improve and moderate physical and chemical conditions in the water column by trapping and filtering sediment and pollutants, and storing and slowing the release of stormwater runoff into coastal waters (Mitsch and Gosselink 1993). Wetlands also contribute to estuarine primary production that is utilized by bay scallops. Wetland plants decay into detritus that is transported to soft bottom and grass beds. Nutrients from the broken down organic matter also support growth of benthic microalgae on the estuarine bottom (Peterson and Howarth 1987). Approximately 45% of salt marsh production is exported to the estuarine system in the form of detritus, dissolved organic matter, and transient fish (Teal 1962).

It is estimated that as much as 34-50% of North Carolina's original inland and coastal wetland coverage has been lost, primarily due to ditching, channelization, and filling for agriculture and development (Dahl 1990; DWQ 2000). The primary threats to wetland habitat today are dredging, filling, and hydrological alterations associated with development. Although the rate of wetland loss has slowed, losses continue to occur. Mitigation for permitted losses and voluntary restoration efforts in some areas have partially offset some recent losses. Ongoing initiatives such as wetland restoration, land acquisition and preservation, and agricultural cost-share Best Management Practices (BMP) need to be enhanced. Additional initiatives should also be implemented to protect and enhance wetland habitat.